

## Student and Instructor Responses to Emotional Motivational Feedback Messages in an Online Instructional Environment

**Firat SARSAR, PhD**

*Ege University, Faculty of Education, Department of Computer & Instructional Technology, Bornova, Izmir, Turkey  
firatsarsar@gmail.com*

### ABSTRACT

The purpose of this study was to investigate the effectiveness of Emotional Motivational Feedback Message (EMFEM) in an online learning environment. This exploratory research was conducted using mixed method single case study design. Participants were 15 undergraduate students enrolled in an instructional technology course in a large state university located in an urban region in the southeastern part of the United States during Fall 2013. Multiple data collection strategies were employed in this study such as a course interest survey, IT attitudes survey, open-ended questionnaires, research journals, forum/discussion postings, emails, reflection papers and warm-up surveys. The findings showed EMFEM helped to increase and maintain students' motivation. Students liked the EMFEM and the style of the instructor's teaching by giving emotional motivational feedback. Students had a closer and friendlier relationship with the instructor; they also started to use more emotional content themselves.

### 1. INTRODUCTION

Feedback, an important technique for learning, has been recognized as responses to students' behaviors, tasks, assignments, and outcomes. Sprenger (2005) defined feedback as assistance to students in helping them know where they are in the learning process. Feedback can affect students in many ways, including improving learning (Askew, 2000; Cheng, Liang& Tsai, 2015; Mory, 2004; Sprenger, 2005), motivation (Connellan, 2002), and emotion (Burke & Pieterick, 2010). In traditional (face to face) classrooms feedback is a rapid, fluid, and almost constant process of natural interaction between the instructor and students. But in online environments the communications channels for feedback are generally somewhat constrained, making it more important that feedback be approached deliberately and with an eye to maximizing the efficacy of the limited feedback opportunities.

Emotions are important factors in learning because they affect students' success (Burke & Pieterick, 2010; Meyer & Turner, 2006), motivation (Hannula, 2006) and satisfaction (Cho & Heron, 2015). Emotions also give clues to educators about what is happening in classroom environments during instruction (Meyer & Turner, 2006).

Connellan (2002) identified three different types of feedback: motivational, informational, and developmental. The different types of feedback help students remain engaged in the learning process (Askew, 2000), but motivational feedback messages are one of the most powerful types of feedback (Connellan, 2002). Many researchers have investigated how feedback messages improve student motivation levels and keep them highly motivated (e.g., Borham-Puyal & Olmos-Migueláñez, 2011; Brookhart, 2008; Kim & Keller, 2008; Nicol & MacFarlane-Dick, 2006; Van den Bossche, Segers, & Jansen, 2010). Motivational feedback messages can help students during the learning process by encouraging them about their progress (Sprenger, 2005). The reactions of students to motivational feedback are generally emotional (Burke & Pieterick, 2010). These emotional reactions help students see feedback as a personal message, which makes it a powerful tool to keep them more motivated (Kim & Keller, 2008).

In this study, we used an Emotional Motivational Feedback Message (EMFEM), which provides feedback by using motivational strategies and adding specific emotional content. EMFEM could be important to motivating students because it could affect students both extrinsically (as a reinforcement) and intrinsically (as an encouragement). Extrinsically, EMFEM provides reinforcements from the instructor to the student for doing better and/or improving their learning activities, leading to the student's being motivated to continue in the same manner (Ryan & Deci, 2000). When the student internalizes those reinforcements, coming to understand that because they have learned successfully in the past, then they can learn successfully in future tasks, they become

“moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards.” (Ryan & Deci, 2000, p.60).

An Emotional Motivational Feedback Message is a feedback message which includes both motivational strategies and emotional content for motivating and encouraging students to seek to learn more about a specific topic. Kim and Keller (2008) investigated motivational feedback messages in online learning environments by using motivational components of the ARCS model (Keller, 1987), and adding volitional components such as Gollwitzer's Rubicon model, (Gollwitzer, 1999), Kulh's six action control strategies (Kulh, 1987), and Visser and Keller's (1990) strategy of motivational messages, to design feedback email messages. This study was based on the ARCS model because that model has long been used for designing motivational messages (e.g., Kim & Keller, 2008; Visser & Keller, 1990). In addition, research shows that the ARCS model works efficiently for designing motivational feedback messages (ChanLin, 2009; Cheng & Yeh, 2009). In this study we used a few different and additional components to explore the effectiveness of EMFEM, which is grounded in feedback strategies (Brookhart, 2008), Visser and Keller's (1990) motivational message design (which was influenced by Keller's, 1987, ARCS theory), and emotional content strategies (Ekman, 2003; Goddard, 2011; Kappas & Krämer, 2011).

Instructors must pay attention to emotion in online learning because in education, it helps to support students in achieving their goals (Meyer & Turner, 2007; Yunus, Osman, & Ishak, 2011). Emotions can be transferred in many ways, such as using facial expressions and mimicry (Ekman, 2003; Marinetti, Moore, Lucas, & Parkinson, 2011; White & Gardner, 2012), gestures/postural movements (Marinetti et al., 2011; White & Gardner, 2012), and verbal emphasis (Marinetti et al., 2011; White & Gardner, 2012). Unfortunately, these techniques are not applicable in text-based asynchronous online learning. Text-based options to facilitate the transfer of emotions include considering the semantic value of words (Farrell, 2012), bold/colored/underlined typing (Dweck, Mangels, & Good, 2004), and emoticons (Kappas & Krämer, 2011; Sarsar, 2008; Sarsar & Kisla, 2013). Because online learning environments are still mostly text-based learning environments, ways of adding emotional content to online feedback messages are limited. Using the meaning of the words, formatting the words by using font effects, and adding emoticons to get students' attention are some strategies that can infuse emotional content into messages.

**1.1. Semantic value of words.** The meaning of words may affect students' emotions (Anusha & Sandhya, 2015; Goddard, 2011). While giving feedback, each word has a specific meaning to the students. If a teacher writes “this is great work,” it might make students feel happy. Whereas “this is good work” might elicit a positive but less pronounced response. Ekman (2003) highlighted that words are the primary way of representing emotions in text-based feedback; therefore, the selection of words is important in generating an emotional response.

**1.2. Font effects.** Using font effects is another option to make messages emotional. This is one of the true affordances of online learning environments. The majority of online environments use word-processing editors which allow both teachers and students to write their feedback using italic, bold, and/or colored text. Price, McElroy & Martin (2015) stressed that font effects might improve students' recall performance. Kalra and Karahalios (2005) noted that different textual representations, such as different colors, font types, size, and format, can help to express emotional content.

**1.3. Using emoticons.** Emoticons are another way of expressing emotions online (Dunlap, Bose, Lowenthal, York, Atkinson & Murtagh, 2015; Kalra & Karahalios, 2005; Kappas & Krämer, 2011; Sarsar, 2008; Tossell, Kortum, Shepard, Barg-Walkow, Rahmati & Zhong, 2012). However, commonly used emoticons have been more limited than the number of emotions in use. Tossell et al (2012) stated that the top three emotions are happy (“:”), sad (“:(“), and very happy (“:D”). The other emoticons that have been commonly used are Joyful :p, Wink/Joking ;), Surprise :o, Anger :-[, and Uncertainty :-\ (Garrison, Remley, Thomas, & Wierszewski, 2011).

Emotion can be adaptable to all steps of the ARCS model, potentially making feedback more personal and more motivational. Using the three most common ways of expressing emotion in online environments might assist students because if the teacher would like to stress a point of view, he or she can make it bold, italic, in a different color, and/or use the emoticons to make message more emotional.

There are many studies on feedback, motivation, and emotion in online learning environments; however, there is limited research on the effectiveness of motivational feedback email messages, and a review of the literature in preparation for this study revealed no research on effectiveness of emotional motivational feedback email messages. Visser and Keller (1990) designed a clinical use of motivational messages to help adult learners in an

in-service continuing education program. They modeled their study as an embedded single case study by using mixed method design to implement and test motivational message design of the ARCS model. They used a variety of data collection tools, such as weekly questionnaires, round-table discussions, observations, and grades. They had 15 adult participants and the results showed that motivational message design provided positive influence on students' motivation to learn. They also found the retention rate and students' performance improved.

With a similar interest, Kim and Keller (2008) investigated the effectiveness of supportive information by using motivational and volitional email messages which were based on different theories and methods, such as Keller's ARCS model, Kuhl's action control theory (Kuhl, 1987), Gollwitzer's Rubicon model of motivation and volition (Gollwitzer, 1999), and Visser and Keller's strategy of motivational messages (Visser & Keller, 1990). Motivational and volitional email messages were sent to 30 students (Personal Message Group) with personal messages and to 71 students (Non-Personal Message Group) without personal messages. The results showed that the personal message group evinced a higher level of motivation, especially in regard to confidence, than the Non-Personal Message Group. Kim and Keller conducted another study to examine the effectiveness of motivational and volitional email messages on pre-service teachers' motivation, volition, and performance, in addition to their attitudes toward technology integration (Kim & Keller, 2010). Fifty-six pre-service teachers participated in this study. The results signified that motivational and volitional email messages worked as an effective tool for facilitating pre-service teachers' positive attitudes toward technology integration and supported a higher volition and more positive attitude toward technology integration.

In another study, Sampasivam and Wang (2012) determined that their learners' math test anxiety was associated with changes in their achievement goals and task-specific emotions in response to different types of feedback. Ninety-five students participated in their study, and were randomly assigned to a Negative Feedback Condition, Positive Feedback Condition, or Control condition. The results showed that there was no significant difference in interaction between feedback condition and math anxiety, and multivariate effects for both math anxiety and feedback condition, but feedback had a significant effect on participants who received positive feedback, while students in the negative feedback condition reported the most negative effect.

Terzis, Moridis, and Economides (2012) explored the effect of emotional feedback on behavioral intention to use computer based assessments (CBA). They used a virtual agent for giving emotional feedback. The agent appeared female, and was rendered in 3D to express common facial emotions, such as sadness or fear. They administered a survey questionnaire to 134 students. They observed that emotional feedback had a direct effect on behavioral intention to use a CBA system and on other crucial determinants of behavioral intention. This study highlighted that emotional feedback makes computer-based assessments seem playful and easy to use.

Researchers (e.g., Maier, Wolf & Randler, 2016; Pintrich & Schunk, 2002; Schutz & Pekrun, 2007) have shown that emotions in education affect students' achievement and motivation. However, there is limited research on emotions in online education, especially in text-based asynchronous online learning environments, and this study contributes toward closing that gap in the literature.

The purpose of this study was to investigate the effectiveness of EMFEM in online learning environments. This exploratory research employed a mixed method, single case study design. Visser and Keller's (1990) motivational message design, which was influenced by Keller's (2010) ARCS Motivational Design Model, was selected as the theoretical framework for this study. This study was designed to investigate the effectiveness of EMFEM on students' motivation, and attitudes in online learning environments with the intent of addressing the following research question: How effective are emotional motivational feedback messages in an online learning environment?

## 2. METHODOLOGY

To investigate the effectiveness of emotional motivational feedback messages in an online learning environment, we collected data within a case study of an undergraduate online course taught at a large university in the southeastern United States. The course provides training in contemporary computer skills, including topics such as information literacy, cyber ethics, spreadsheets, and web design. The course included 20 students, 15 of whom agreed to participate in the study after signing informed consent documents.

### 2.1. Participants

The 15 participating students were in two academic areas: 11 were majoring in Exercise Science (which required this course as part of the program of study), and 4 were majoring in fields in the Department of Communication (which allowed the course to count as an elective). Ten of the students were male, and 5 were female. At the

beginning of the course, participants completed Keller's (2010) Course Interest Survey, which consists of 34 items identifying 4 subscales of interest (attention, relevance, confidence, satisfaction). Possible total scores can range from 34 to 170. In this sample, the minimum score was 102, and the maximum score was 158, with a mean of 133.40 ( $SD = 18.44$ ). The mean for female students, 139.40 ( $SD = 10.00$ ) was greater than the mean for male students, 130.40 ( $SD = 21.32$ ), but the difference was not statistically significant ( $t(13) = .884, p > .10$ ) within this small sample. The mean for Exercise Science students, 135.18 ( $SD = 19.15$ ) was greater than the mean for Communication students, 128.50 ( $SD = 17.92$ ), but this difference also failed to evince statistical significance ( $t(13) = -.606, p > .10$ ).

## 2.2. Setting

The online computer skills class that provided the setting for this study was a 14-week, 3 credit hour course offered through the University's online learning management system (LMS). Students registered for the course during the University's regular registration period, just as they would for a traditional, face-to-face class. The lead author served as the instructor for this course. Over 13 weeks, students submitted weekly assignments, and they submitted reflection papers during the 14th week, giving ample opportunity for the instructor to provide emotional motivational feedback. Feedback on assignments was delivered through the "Dropbox" area of the course site, and it consisted of a numeric grade along with written feedback. Additionally, students communicated with each other and with the instructor through emails, the feedback box, and discussion/forum postings. During this section of the course, the instructor published approximately 150 emails, 250 forum postings, and 300 feedback messages, although only those involving study participants are considered in this report.

## 2.3. Procedures

At the beginning of the course, students completed the Course Interest Survey (Keller, 2010) and the Information Technology Survey (Wong, 2002), which measures participants' attitudes toward information technology. The survey consists of 24 Likert-type items with possible scores ranging from 1 (*strongly disagree*) to 5 (*disagree*). Additionally, we administered a questionnaire of 10 open-ended items designed to further investigate students' motivational factors and attitudes toward information technology and the course.

Also at the beginning of the course, we administered three mini-surveys to determine how familiar students were with using emotional content strategies. These surveys asked about color preferences, typing/font style preferences, emoticons, and encouraging and discouraging words. Results from these surveys guided the instructor (first author) in his creation of emotional motivational feedback messages throughout the course.

Each week of the course, students engaged in the instruction provided and then responded through their assignments, discussion board postings, and emails. After the instructor evaluated their contributions each week, he responded to them with emotional motivational feedback messages, which he had created using the mini-survey results, Keller's (2010) ARCS strategy, feedback strategies (Brookhart, 2008), and emotional content. Brookhart (2008) identified four strategies—timing, amount, mode, audience—that were used throughout the course. The feedback messages were given after each assignment and on a weekly basis. They covered main points and level of achievement of major course objectives. The instructor sent feedback messages individually using email-messaging or other relevant tools.

**Table 1.** Constructing Emotional Motivational Feedback Messages Using Keller's (2010) ARCS Model

Stage	Description	Key Concepts	Example Text Emotional Motivational Feedback Messages
Attention	Capturing interest	<ul style="list-style-type: none"> <li>• Write student's name at beginning of message</li> <li>• Use humor</li> </ul>	John, Thank you for sending this GREAT homework. ☺
Relevance	Meeting the personal needs and expectations for positive attitude	<ul style="list-style-type: none"> <li>• Identify goal of previous assignment</li> <li>• Describe relationship between goal and activity</li> <li>• Describe relationship between activity and student's field.</li> </ul>	This homework was about the ways of using MS office Word efficiently. All of us using one of word editors to save our documents electronically. I am also one of them. ☺ You are majoring in health care, so it was a very good opportunity for you to learn how to use this software for reporting the health information of your patient!

Confidence	Awareness of achieving and controlling success	<ul style="list-style-type: none"> <li>● Confirm meeting of expectations</li> <li>● Give advice regarding improvement of skills</li> <li>● Provide information about quality and correction (if needed)</li> </ul>	You met all the expectation of this small activity. <b>YAY!</b> We used MS Word, but I recommend you to try Open office as well. You will see that you can do the same kind of tasks using other word editors.
Satisfaction	Reinforcement	<ul style="list-style-type: none"> <li>● Provide grade for assignment</li> <li>● Praise student effort</li> </ul>	This <u>excellent</u> homework got 6 full credits!!! YOU did a <b>GREAT</b> job. I know that you will do the same for others. ☺

Keller's (2010) motivational strategies were reflected mostly in the structure of content, which was focused, clear, personalized, and brief. Because the students received feedback as they were beginning the next week's instruction, the instructor used motivational strategies to encourage their learning activities. Table 1 shows the phases of construction of a motivational feedback message and an emotional motivational feedback message using Keller's ARCS model. Additionally, we felt it important to provide personalized but brief feedback, as longer feedback messages risk becoming tedious and confusing.

Once the motivational feedback messages were created, the instructor introduced additional emotional components using three strategies: selecting words for their positive connotations, using font effects, and adding emoticons. The students had identified words with positive connotations in the mini-surveys, and the instructor made use of these. Font effects included using boldface, italics, underlining, colored text, colored backgrounds behind texts, or punctuation. Emoticons are computer images created using standard keyboard keys. For instance, :) represents a smiling face (☺) when viewed on its side. Emoticons are popular in online forums and in text-messaging.

#### 2.4. Data Collection and Analysis

Quantitative data were collected primarily through two instruments, Keller's (2010) Course Interest Survey and Wong's (2002) Information Technology Survey. Qualitative data were collected through the various assignments, discussion postings, and email messages previously described. Additionally, qualitative data were collected through open-ended questionnaires, the instructor's electronic research journal, the mini-surveys, and end-of-course reflection papers.

Because our sample size was small, we analyzed the quantitative data from the surveys using a descriptive analysis approach, identifying differences between subgroups of the participants, while understanding that these differences would not be generalizable to larger populations because of our purposive sampling strategy. Results of the quantitative analysis contribute to a detailed description of the research setting and participants, information readers can use to assess the transferability of the results.

Because of the large number of text documents providing qualitative data for the study, we used content analysis to analyze them. As the main focus of the study was a new topic in online learning environments, content analysis was appropriate because it can lead to the development of a framework to categorize codes that then help conceptualize the content of the texts (Ulrike, 2010). We used Schreier's (2012) description of the steps for content analysis to guide recursive analysis. We began by looking at the raw data for theme codes. When we had accumulated a number of codes, we used them to create a code sheet, and we sorted the data into categories. We used the code sheet to analyze the next group of data and then compared these results with previous results in the data collection. Once we created a draft code frame and categories, we sent the code frame and a sample of data to two colleagues for their review. Finally, the results from the peer reviewers were compared and the code frame was finalized. After data coding finished, we abstracted the data.

Our data collecting involved multiple data sources (multiple participants who produced multiple types of texts), creating a triangulation (Krefting, 1991; Merriam, 1998) of results to contribute to the credibility of the study. We relied on peer review, as described above and in debriefing sessions as we conducted the study, to strengthen the dependability of the study. The instructor kept detailed notes in his research journal and during coding sessions in order to create an audit trail describing the research process as it occurred. These characteristics along with the descriptions we provide for the purposes of transferability evaluation support the trustworthiness of our results.

### 3. FINDINGS

In this section, we present the baseline data we collected using the mini-surveys, and then we present the outcomes of the study group according to specific themes that appeared most prominently in our content analysis of the course texts. The baseline data presented here addresses the three primary strategies for including emotional motivational feedback messages in an online course, providing information about the participants' experiences and attitudes toward the various feedback techniques. The outcomes are presented in the following categories: motivation, attitudes, instructor's role, emotional reflection, and feedback.

#### 3.1. Baseline Data

The three mini-surveys conducted at the beginning of the course provided an understanding of students' previous experience with the emotional motivational feedback strategies we studied: word choices, font effects, and emoticons. These data provide a description of the students as they began the course and provided guidance to the instructor as he designed emotional motivational feedback messages during the course.

**3.1.1. Word Choices.** Given a choice of potential feedback for an assignment, most student participants selected the choice they characterized as motivating ("This assignment should be improved, but I believe that you could do better.") over the choice they characterized as honest ("This assignment is not good enough, but I believe that you could do better."). One participant preferred what we intended as a negative phrasing ("This assignment is bad, but I believe that you could do better.") but only explained this preference as a "personal choice."

Participants identified a number of words as positive, as making them feel happy when they heard them. The five most frequently appearing words were "excellent," "wonderful," "great," "beautiful," and "perfect." Similarly, we asked them to identify negative words, words that might make them feel upset when they heard them from somebody, and the five most frequently occurring of these were "bad," "terrible," "horrible," "awful," and "stupid."

**3.1.2. Font Effects.** In the mini-surveys, participants mentioned that colored text, italics, and boldface can emphasize the importance of the meaning of texts. However, students differed on how they interpreted that importance, particularly with regard to colored text. On the mini-survey, colored text was represented as an option using red, which, for one student, conveyed a positive emphasis "because it is a different color, which stands out the most among the other fonts." However, another student felt it a negative influence "because the red throws me off a bit. Red is usually associated with something bad/negative." His opinion was shared by another participant, who also discussed other font effects from the mini-survey:

I like GREAT [the sample word] bolded and capitalized. It affects me positively and makes me feel like I did a really good job. Black is always a safe professional color to use especially for bold. I like colors bolded as well, and I wouldn't mind them used, but not in red. I associate red with correction and wrong doing so seeing GREAT in red creates a confused reaction for me.

How students felt about using colored fonts for emphasis was confounded by the fact that a number of students had negative associations with the particular color being discussed (red). The participants might have had more positive things to say about a different font color, such as blue or green, although some participants might have had negative associations with one or both of those colors as well.

The participants suggested a number of ways they might themselves use font effects in feedback they provide. One wrote, "I would use them because they would be a great way to highlight the key points in the feedback." Another viewed the font effects as useful as a back-up plan: "I may use it if the student seems to not notice the first few feedbacks about what I'm trying to hint towards." A third student emphasized how font effects might be particularly relevant in online learning environments: "It is exciting and since you do not have face to face time together it is nice to give variety to students." And one student described a specific scheme for using different font effects in feedback:

I would use it on a word that could sum up the whole point. That way if students don't take the time to read the feedback, they will at least see the one word and know what the instructor felt about their assignment

**3.1.3. Emoticons.** Most participants reported that they had used emoticons, with 6 of them reporting that they use emoticons sometimes and 7 reporting that they use emoticons often. However, 8 of the 15 participants indicated that they did not feel emotionally connected when they used emoticons in learning environments. For instance, one wrote,

I feel weird using these with professors since I use emoticons in an unprofessional friendly setting. School is like a job for me that is professional. I like using emoticons, but in class I feel like I have trained to never use things like that. However, I feel more connected when using them in everyday life, but in class or work it's just a different setting.

For this student, using emoticons conflicted with the expectations he had developed regarding the professional nature of collegiate learning. Another student identified a similar restraint: “Sometimes, it just feels weird,” she said, “because teachers have told us to refrain from it for so long. But when I get more used to it, I’ll probably be more emotionally connected.”

In contrast, a third student identified a reluctance to use emoticons based on the medium itself: “I’m more focused on what and how an individual delivers a message. Emoticons are nice for emphasis and accentuating a message, but some people just like to use it for the sake of using it.” She suggests meanings conveyed by emoticons may be diminished by their overuse by some communicators.

### **3.2. Outcomes**

**3.2.1. Motivation.** At the end of the course, the participants again completed the Course Interest Survey, and the results are presented in Table 2. On all four of the ARCS (Keller, 2010) subscales, mean scores were higher than the subscales midpoint, suggesting a high level of motivation among the participants. More evidence of this effect on motivation appeared in students’ responses to the post-intervention questionnaire. “As a college student,” one student wrote, “stress hits you from so many different angles and that one feedback message could give you that extra push,” suggesting that the feedback messages contributed to his confidence. Another student explained, “encouragement, emotional feedback, is definitely something that allows students to push further in their studies and connect with a professor in a way that makes class enjoyable,” suggesting that the feedback messages contributed to her confidence and satisfaction. In her reflection paper, one of the students also described how the feedback messages contributed to her confidence: “It shows that the instructor is staying positive and trying to encourage you to do better.”

**Table 2.** CIS Survey with Subcategories

Subscale	Mean Score	Scale Middle Score	Scale Maximum Score	Out of 5
Attention	29	24	40	3.60
Relevance	36	27	45	4.00
Confidence	32	24	40	4.00
Satisfaction	36	27	45	4.00
Total	133	102	170	3.99

**3.2.2. Attitudes.** Because this study was conducted within an instructional technology course, we surveyed the participants about the course to see if they had positive feelings about it. The Instructional Technology Attitude survey produced a mean score of 87.80, which is just above the midpoint of the scale, suggesting a slightly positive mean for the group of participants. In their reflection papers, a number of students described their attitudes about the course. One wrote, “I appreciated everything this class was, especially compared to my other classes,” and another wrote, “I feel like the course was exactly how I imagined it would be. I learned good quality material that was very helpful and useful as I continued through the course.” A third wrote,

Overall this was a great class to take and one that I would definitely recommend to everyone because it is not your average college class where you sometimes wonder if you are ever actually going to use the things that you are learning in life.

While these statements do convey a positive assessment of the participants’ experiences in the course, they do not specifically tie that evaluation to the innovative use of feedback in the course. However, one student did make that connection in his reflection paper:

Although I am not happy with my potential final grade for the class, I was more than satisfied with the professor’s attempt at helping me get a better grade throughout the semester.

**3.2.3. Instructor’s Role.** Students’ descriptions of their beliefs about the course instructor and the relationship they had with him were evinced in their comments about the emotional motivational feedback messages. For instance, on the post-intervention questionnaire, one student wrote, “I liked it just because it made our relationship more [than] a instructor and student more like a friend level.” Another wrote, “They [feedback]

messages] made me feel like I could contact my instructor whenever, which I did not feel with my other online instructors, because a close connection between a student and an instructor is helpful for the student to want to learn.” In his reflection paper, one student described the instructor: “Gave great feedback, responded almost immediately to emails and made you feel that you weren’t just a student and an instructor but a friend who is helping you to become good at using the computer.” Another wrote,

As the semester progressed I noticed the feedback of [instructor] becoming more personalized, as if he was genuinely concerned with something that I was doing, or the way I was absorbing the material, and I appreciate his individualized attention.

A third student wrote, “This particular course was very interesting for me because I never had an instructor who expresses his feelings and emotions to his students.” These comments suggest that instructor’s efforts to convey emotional and motivational content within the feedback messages were recognized and appreciated by the students.

As researchers, we were pleased at this kind of response from the students, but, in his research journal, the instructor described some of the difficulties he encountered while trying to provide detailed emotional motivational feedback. During Week 2 of the course, he wrote,

I am already overwhelmed to write feedback, because I am writing very individually, so I needed to mention very specific points. Writing feedback to one student takes 20 minutes. I think it would be a great to create a new [template] and leave some parts empty for writing individual points.

While creating the new template did help the instructor provide feedback to the students more quickly, it led to another complication. During Week 6 of the course, he wrote,

Students’ expectations are increasing; they email me more and want me to respond very quickly. If I wait one day to respond, they are emailing me again. It is the 6<sup>th</sup> week of the semester and it is getting more difficult to respond to their emails, because they started to write me more. It is the first time that I am dealing with that many emails.

However, by Week 10 of the course, he himself began to feel emotional and motivational benefits from the frequent communication with his students:

It is the 10<sup>th</sup> week and I feel that I have become friends with them. They started to share their daily life with me. Although they haven’t seen me, they are sharing important events of their lives with me. I feel more connected while they are sharing more. It is the first time I feel that I know my students better.

For the students, the emotional motivational feedback messages contributed to creating a bond between them and their online instructor, one they may not otherwise have had without face-to-face interaction with him. However, for the instructor, creating this relatable persona through the feedback messages took a great deal of time and effort, but ultimately he found that using the messages helped him relate better to his online students.

**3.2.4. Emotional Reaction.** Students participating in the study reflected their feelings in different kinds of course texts, such as email messages, reflection papers, and discussion posts. Of the specific strategies for making texts more emotional that we are considering in this study, students mostly used punctuation, particularly exclamation points. Table 3 shows some of the strategies they used. Absent from the table (because students did not use them) are boldface, underlining, and colored text.

**Table 3.** Strategies for Expressing Emotion

Expression	Frequency	Sample
Marks	84	I maybe we will have class together, good luck and great blog! I hope you have tons of fun in Texas!!
Caps	24	REALLY glad football has started back up!!! I LOVE them!
Emoticons	21	very cool :) The blog..... :/
Internet Language	13	Lol! Exactly, I feel you man Finally get to try something I never got to do before haha.
Value of Word	12	chiiiiillllllllll PS4 babyyyyyyyy!!!!!!

Students expressed their emotions about a number of course-related and non-course-related topics. For instance, one student emailed the instructor, saying, “I am very grateful that you were able to [make me] aware of this.” Another indicated, “I love that the directions are clear and concise so I know how to format every assignment.” Another student, in a discussion post, describes in detail what he was feeling and why:

This week has been one of my easiest weeks, [except] for the large test I had to study for on Monday, but other than that I had very few hours at work and a small amount of homework. I have nothing to complain about for the week except that it was boring. But everyone needs some boring sometimes

One of the students commented on her fondness for the emotional motivational feedback messages:

I loved that there was feedback after most assignments because it gave me more of an understanding of what was expected and how well I was doing. I also liked that there was frequent communication from the instructor.

This sharing of emotions evolved over time, according to the instructor’s research journal. During the first week, he observed that the students were “not ready to talk about their emotions,” but by Week 4, he realized, “When students see that I am comfortable [using] emoticons and typing formats, they started to use them as well. I think they were waiting for my move.” By Week 8, he had observed transformations in the students’ communication patterns:

I think I started to change something in their lives. At least they feel free to talk about their daily lives’ issues with me. They don’t know me, I am just an online instructor for them but I also feel that we are getting closer and started to know each other better. I know some of their struggles and their problems. It makes me feel like more of a teacher.

Thus, the emotional opening up of the students led to similar feelings within the instructor, who wrote in Week 9, “Isn’t it good [when] one of your students [compliments] how you are taking care of your students? Yes it is. It made my day and I feel that I am connected with my students.”

**3.2.5. Feedback.** Students found the feedback message important as a course component, one that was innovative compared to other courses they had taken. For example, in her reflection paper, one student wrote,

This course also introduced me to emotional feedback. I noticed that my instructor’s feedback style was very different from my other instructors’ feedback. His style was way more personal and unique.

Another student, also in her reflection paper, wrote, “This encouragement and feedback also sparked motivation to keep doing well on my assignments.” One student appreciated that he was able to provide feedback to the instructor throughout the course and that he received the same:

Normally I give my feedback at the end the semester but this class wants the students to give feedback during the semester which is good because then the class itself can [make] improvements throughout the semester. One thing that is also good is the constant feedback every time I do an assignment.

Students recognized the feedback messages as important components of the course, as opposed to evaluative statements, such as grades, to which they could not respond. “The instructor did send friendly and personalized feedback which helped,” one student wrote in his post-intervention questionnaire.

A particular aspect of the feedback messages that students appreciated was personalization. Even when he was using a template to fashion messages, the instructor addressed students by name and included information specific to their assignments and backgrounds. In the post-intervention questionnaire, one student wrote, “it is an encouragement to read a personalized feedback,” while another observed, “I would not expect personalized feedback from other instructors.” One student wrote that the instructor’s “feedback made me feel like he actually took the time out to personally read our work and respond.” Several students expressed their appreciation of personalized feedback in their reflection papers.

As previously mentioned, the instructor started to become overwhelmed with the amount of effort involved in providing feedback that reflected the ARCS (Keller, 2010) model, but he also recognized the benefits of putting in that extra effort. In his research journal, the instructor described some of the effects of feedback on the way students were performing. In Week 7, he wrote,

Writing a long feedback response is not a fun part of teaching but it is an essential part. It takes time, but I feel that my students are learning by reading feedback. Some of them are writing me back to ask if there is a chance to re-do their homework again.

In Week 9, he recorded the following insight:

Feedback is a very important tool for online learning, especially when your students cannot see you. They only know me by my feedback. I wonder what kind of instructor I am in their mind right now. I am very excited to read their reflection [papers].

In an educational institution, feedback, at least in the form of evaluative grades, is required. However, in this case, where the instructor was specifically infusing emotional and motivational content within the feedback he provided, the work-intensive process of providing feedback led to reflection of himself as a better, more involved instructor, one he hoped the students recognized as well

#### 4. DISCUSSION

An emotional motivational feedback message (EMFEM) is defined in this study as a feedback message which was the combination of motivational strategies using ARCS model (Keller, 2010) and emotional content strategies: using emoticons (Kappas & Krämer, 2011; Tossell et al 2012; Dunlap et al, 2016), formatting words (Kalra & Karahalios, 2005), and using the semantic value of words (Goddard, 2011; Anusha & Sandhya, 2015).

The results of this study suggested that EMFEM contributed to an increase in students' motivation. The Course Interest Survey (CIS) revealed that students were motivated during the online class. The CIS had four subcategories, attention, relevance, confidence, and satisfaction. They were measured individually in this study. Although all categories were higher than the midpoint of the survey, attention was slightly lower than the other three subcategories. Keller (2010) gives three main strategies to arouse and sustain attention. These strategies are perceptual arousal by using novel, surprising, incongruous, or uncertain events; inquiry arousal by having the learner generate questions, or a problem to solve; and variability by varying the elements of instruction. One of the strategies was to arouse attention in these kinds of environments to start writing messages by using the students' names, as Kim and Keller (2008) highlighted in their studies. However, because of the nature of the course, assignments were designed weekly and feedback was mainly given after assignments. This meant that there was an entire week that students were engaging with their assignments. During a week, students' attention might shift often. Additionally, students had more than three courses for the semester and some of them were taking an online course for the first time; therefore, their additional course load and lack of seeing the instructor might have affected their attention. Overall, students' motivational level was increased. EMFEM was one of the catalysts for this increase during the study. These results are consistent with Maier's et al. (2016) study. They found that elaborated feedback related to intrinsic motivation.

EMFEM had two powerful components: Emotional and Motivational strategies. Emotion and motivational strategies might affect students' motivation by using them individually and also, as shown in this study, by using them together. During the study, students mentioned that it seemed that EMFEM from their instructor motivated them in many different ways (i) EMFEM facilitated having a closer relationship with their instructor, (ii) EMFEM encouraged students to do their work better and (iii) EMFEM led to additional enjoyment in the course. The similar results reflected in Sampasivam and Wang's (2012) study mentioned that feedback had a significant effect on participants who had positive feedback, and students in the negative feedback condition reported the most negative effect.

The result of the IT attitude survey showed that students' attitudes toward the course improved by the end of the course. The other data also supported this statement. The CIS showed that satisfaction, as one of the subcategories of CIS, increased during the course. Students' attitudes might be one of the indicators which was related to students' satisfaction, as it was highlighted that e-learners' satisfaction related to learners' attitudes toward IT (Sun et al., 2008) or the course in this case. This finding also dovetails with the studies of Terzis et al. (2012) which highlighted that emotional feedback made computer-based assessments playful and easy to use. Similarly, Cho and Heron (2015) found that emotion played an important role in explaining students' satisfaction.

Another aspect of positive attitude towards the course might be the effectiveness of EMFEM. Students' reflection papers showed that students enjoyed having EMFEM during the course. They also reflected their positive attitude towards the course by mentioning how they liked to be in the class. This finding is consistent with Kim and Keller's (2010) study, in which they highlight that motivational and volitional email messages can facilitate students' positive attitude toward technology integration.

Personalization was one of the important effects of EMFEM. Gallien and Oomen-Early (2008) define personalized feedback as a feedback message which is given individually. This result might be explained under the title of feedback; however, it might be better to explain it separately for considering the limitation of asynchronous online learning environments and effectiveness of the feedback messages. There were several strategies applied in this area during this research. These include (i) mentioning students' names in each EMFEM; (ii) mentioning specific information about them such as their field of study in the first EMFEM; (iii) giving specific points of their assignments in each EMFEM; and (iv) using emotional and motivational strategies. Students mentioned that EMFEM helped them feel personalized. On the other hand, personalized feedback messages might affect students' satisfaction, as noted in Gallien and Oomen-Early's (2008) study. They highlighted that students who received personalized feedback were more satisfied and performed academically better than students who received only collective feedback.

One of the challenges of motivation in online classrooms is to make students feel that the instructor is addressing their individual needs. Lack of instructors' personal attention might affect students' motivation (Kim and Keller, 2008). Students in this study noted that they would like to have personalized feedback messages in other classes as their instructor in this class had done. That way, they felt encouraged when they knew that the instructor gave his attention to all students' work, read it and responded individually. As the instructor, the first author noted that personalized feedback was a part of the EMFEM, which made them feel like they belonged in the learning environment and encouraged students to do their work better. These results also overlap with Kim and Keller's (2008) study. In their study, they highlight that personalized motivational volitional emails might be useful supports for improving students' motivation.

## 5. CONCLUSION

This study focused on determining the effectiveness of EMFEM which was defined as a feedback message combining motivational and emotional content strategies. Results showed that (i) students' motivation was increased; (ii) students' positive attitudes toward IT increased; (iii) students liked the EMFEM and the instructor's teaching style; (iv) students had a closer and friendlier relationship with the instructor; (v) by the end of the course, students were satisfied with the course; (vi) students started to use more emotional content; (vii) students enjoyed having personalized EMFEM and requested to have more EMFEM; and (ix) students had positive experiences by the end of the course.

Online instructors should be aware of their students' needs, perhaps by answering a few questions such as: what, when and how the students would like to learn. The other important question is to ask what kind of instructor students want. This question may be especially important for online instructors. They should ask themselves —what kind of instructor am I? In this study, the instructor chose to be friendly, social, and responsive. The results of this study should be considered in this light. Students' responses, their interaction with the instructor and their feelings toward the instructor were related to instructors' teaching skills, personality and educational philosophy.

In future studies, researchers should be aware of the relatedness of online instructors' decisions about their teaching roles in online learning environments. This study, despite its limitations, provided an assessment of a new kind of feedback message for online learning environments. EMFEM was supported by emotional content and motivational strategies for encouraging students during the course. Further research might clarify how EMFEM works in online learning environments and explore strategies for making instructor use of EMFEM more efficient.

## REFERENCES

- Anusha, V., & Sandhya, B. (2015). A learning based emotion classifier with semantic text processing. In *Advances in Intelligent Informatics* (pp. 371-382). Springer International Publishing.
- Askew, S. (2000). *Feedback for learning*. London ; New York: Routledge/Falmer.
- Borham-Puyal, M., & Olmos-Migueláñez, S. (2011). Improving the use of feedback in an online teaching-learning environment: An experience supported by moodle. *US-China Foreign Language*, 9(6), 371-382.
- Brookhart, S. M. (2008). *How to give effective feedback to your students*. Alexandria, Va.: Association for Supervision and Curriculum Development.
- Brookhart, S. M. (2012). Teacher feedback in formative classroom assessment. In C. F. Webber & J. L. Lupart (Eds.), *Leading Student Assessment*. Dordrecht: Springer Science+Business Media B.V.
- Burke, D., & Pieterick, J. (2010). Giving students effective written feedback. McGraw-Hill Education (UK).
- ChanLin, L.-J. (2009). Applying motivational analysis in a Web-based course. *Innovations in Education & Teaching International*, 46(1), 91–103.

- Cheng, Y.-C., & Yeh, H.-T. (2009). From concepts of motivation to its application in instructional design: Reconsidering motivation from an instructional design perspective. *British Journal of Educational Technology*, 40, 597–605. doi:10.1111/j.1467-8535.2008.00857.x
- Cheng, K. H., Liang, J. C., & Tsai, C. C. (2015). Examining the role of feedback messages in undergraduate students' writing performance during an online peer assessment activity. *The Internet and Higher Education*, 25, 78-84.
- Cho, M. H., & Heron, M. L. (2015). Self-regulated learning: the role of motivation, emotion, and use of learning strategies in students' learning experiences in a self-paced online mathematics course. *Distance Education*, 36(1), 80-99.
- Connellan, T. K. (2002). *Bringing out the best in others! : 3 keys for business leaders, educators, and parents*. Austin, TX: Bard Press.
- Dunlap, J. C., Bose, D., Lowenthal, P. R., York, C. S., Atkinson, M., & Murtagh, J. (2015). What sunshine is to flowers: A literature review on the use of emoticons to support online learning. *Emotions, Technology, Design, and Learning*, 163.
- Dweck, C.S., Mangels, J., & Good, C. (2004). *Motivational effects on attention, cognition, and performance*. In D.Y. Dai & R.J. Sternberg (Eds.), Motivation, emotion, and cognition: Integrated perspectives on intellectual functioning. Mahwah, NJ: Erlbaum.
- Ekman, P. (2003). *Emotions revealed: recognizing faces and feelings to improve communication and emotional life* (1st ed.). New York: Times Books.
- Farrell, M. (2012). The effective teacher's guide to autism and communication difficulties practical strategies. Hoboken: Taylor & Francis.
- Garrison, A., Remley, D., Thomas, P., & Wierszewski, E. (2011). Conventional faces: Emoticons in instant messaging discourse. *Computers and Composition*, 28(2), 112–125. doi:10.1016/j.compcom.2011.04.001
- Goddard, C. (2011). *Semantic analysis: a practical introduction* (2nd ed.). Oxford ; New York: Oxford University Press.
- Gollwitzer, P. M. (1999). Implementation intentions. Strong effects of simple plans. *American Psychologist*, 54, 7, 493–503.
- Hannula, M. S. (2006). Motivation in mathematics: Goals reflected in emotions. *Educational Studies in Mathematics*, 63(2), 165–178. doi:10.1007/s10649-005-9019-8
- Kalra, A., & Karahalios, K. (2005). TextTone: expressing emotion through text. *Human-Computer Interaction-INTERACT 2005*, 966-969.
- Kappas, A., & Krämer, N. C. (2011). *Face-to-face communication over the Internet: emotions in a web of culture, language, and technology*. Leiden: Cambridge University Press. Retrieved from <http://public.eblib.com/EBLPublic/PublicView.do?ptiID=713035>
- Keller, J. M. (1987). Development and use of the ARCS model of motivational design. *Journal of Instructional Development*, 10, 3, 2–10.
- Keller, J.M. (2010). *Motivational design for learning and performance*. Boston, MA: Springer US. Retrieved from <http://www.springerlink.com/index/10.1007/978-1-4419-1250-3>
- Kim, C., & Keller, J. M. (2008). Effects of motivational and volitional email messages (MVEM) with personal messages on undergraduate students' motivation, study habits and achievement. *British Journal of Educational Technology*, 39(1), 36–51.
- Kim, C., & Keller, J. M. (2010). Towards technology integration: the impact of motivational and volitional email messages. *Educational Technology Research and Development*, 59(1), 91–111. doi:10.1007/s11423-010-9174-1
- Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *The American journal of occupational therapy*, 45(3), 214-222.
- Kuhl, J. (1987). Action control: the maintenance of motivational states. In F. Halisch& J. Kuhl (Eds), *Motivation, intention and volition* (pp. 279–291). Berlin, Germany: Springer.
- Maier, U., Wolf, N., & Randler, C. (2016). Effects of a computer-assisted formative assessment intervention based on multiple-tier diagnostic items and different feedback types. *Computers & Education*, 95, 85-98.
- Marinetti, C., Moore, P., Lucas, P., & Parkinson, B. (2011). Emotions in social interactions: Unfolding emotional experience. In P. Petta, C. Pelachaud, & R. Cowie (Eds.), *Emotion-oriented systems: The humaine handbook*. Berlin; Heidelberg; New York: Springer.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.
- Meyer, D. K., & Turner, J. C. (2006). Re-conceptualizing emotion and motivation to learn in classroom contexts. *Educational Psychology Review*, 18(4), 377–390. doi:10.1007/s10648-006-9032-1
- Meyer, D. K., & Turner, J. C. (2007). Scaffolding emotions in classrooms. In P. A. Schutz & R. Pekrun (Eds.), *Emotion in education*. Amsterdam; Boston: Elsevier Academic Press.

- Mory, E. H. (2004). Feedback research revisited. *Handbook of research on educational communications and technology*, 745–783.
- Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in higher education*, 31(2), 199–218.
- Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: theory, research, and applications* (2nd ed.). Upper Saddle River, NJ: Merrill.
- Price, J., McElroy, K., & Martin, N. J. (2015). The role of font size and font style in younger and older adults' predicted and actual recall performance. *Aging, Neuropsychology, and Cognition*, 1-23.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.
- Sampasivam, L., & Wang, X. (2012). *Emotional and motivational effects of feedback on high/low anxiety groups*. Washington, District of Columbia, US: American Psychological Association (APA). Retrieved from <http://ezproxy.gsu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=pxh&AN=638852012-001&site=ehost-live>
- Sarsar F. (2008). *Effects of online collaborative learning environments on social skills of pre-service teachers*, Ege University, Applied Science Institute, Master Thesis, Izmir, Turkey.
- Sarsar, F. & Kisla, T. (2013). Students' emotional transfers in online environment . In R. McBride & M. Searson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2013* (pp. 2401-2406). Chesapeake, VA: AACE.
- Schreier, M. (2012). *Qualitative content analysis in practice*. London; Thousand Oaks, Calif.: Sage Publications.
- Schutz, P. A., & Pekrun, R. (2007). *Emotion in education*. Amsterdam; Boston: Elsevier Academic Press.
- Sprenger, M. (2005). *How to teach so students remember*. Alexandria, Va.: Association for Supervision and Curriculum Development. Retrieved from <http://site.ebrary.com/id/10081763>
- Terzis, V., Moridis, C. N., & Economides, A. A. (2012). The effect of emotional feedback on behavioral intention to use computer based assessment. *Computers & Education*, 59(2), 710–721.
- Tossell, C. C., Kortum, P., Shepard, C., Barg-Walkow, L. H., Rahmati, A., & Zhong, L. (2012). A longitudinal study of emoticon use in text messaging from smartphones. *Computers in Human Behavior*, 28(2), 659–663.
- Ulrike, P. (2010). Online support communities. In P. Zaphiris & C. S. Ang (Eds.), *Social computing and virtual communities*. Boca Raton: Chapman & Hall/CRC Press.
- Van den Bossche, P., Segers, M., & Jansen, N. (2010). Transfer of training: the role of feedback in supportive social networks. *International Journal of Training and Development*, 14(2), 81-94.
- Visser, J. & Keller, J. M. (1990) The clinical use of motivational messages—an inquiry into the validity of the Arcs model of motivational design. *Instructional Science*, 19(6), 467-500.
- White, J., & Gardner, J. (2012). *The classroom X-Factor : The power of body language and nonverbal communication in teaching*. London; New York, NY: Routledge.
- Wong S. L. (2002). *Development and validation of an Information Technology based instrument to measure teachers' IT preparedness*, unpublished doctoral thesis, Universiti Putra Malaysia. Serdang,,Selangor,Malaysia.
- Yunus, M. M., Osman, W. S. W., & Ishak, N. M. (2011). Teacher-student relationship factor affecting motivation and academic achievement in ESL classroom. *Procedia-Social and Behavioral Sciences*, 15, 2637-2641. Cognitive neuroscience of emotion. Oxford University Press, USA.